

chemical equilibrium

Reversible processes [processes which may be made to proceed in the forward or reverse direction by the (infinitesimal) change of one variable], ultimately reach a point where the rates in both directions are identical, so that the system gives the appearance of having a static composition at which the Gibbs energy, G , is a minimum. At equilibrium the sum of the chemical potentials of the reactants equals that of the products, so that:

$$\Delta G_{\text{r}} = \Delta G_{\text{r}}^{\circ} + RT \ln K = 0$$

$$\Delta G_{\text{r}}^{\circ} = -RT \ln K$$

The equilibrium constant, K , is given by the *mass-law effect*.

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